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## SEQUENCE LISTING

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&lt;110&gt; Zhu, Zhenping

&lt;120&gt; Bispecific Antibodies That Bind to VEGF Receptors

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&lt;141&gt; 2002-12-24

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&lt;151&gt; 2002-06-26

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&lt;151&gt; 2002-06-26

&lt;160&gt; 137

&lt;170&gt; WordPerfect 8.0 for Windows

&lt;210&gt; 1

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;400&gt; 1

Gly	Phe	Asn	Ile	Lys	Asp	Phe	Tyr	Met	His
1				5					10

&lt;210&gt; 2

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;400&gt; 2

Trp	Ile	Asp	Pro	Glu	Asn	Gly	Asp	Ser	Gly	Tyr	Ala	Pro	Lys	Phe	Gln
1				5					10					15	

Gly
17

&lt;210&gt; 3

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;400&gt; 3

Tyr	Tyr	Gly	Asp	Tyr	Glu	Gly	Tyr
1				5			

&lt;210&gt; 4

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;400&gt; 4

Ser	Ala	Ser	Ser	Ser	Val	Ser	Tyr	Met	His
1				5					10

<210> 5  
 <211> 7  
 <212> PRT  
 <213> Mouse

<400> 5

Ser Thr Ser Asn Leu Ala Ser  
 1 5

<210> 6  
 <211> 9  
 <212> PRT  
 <213> Mouse

<400> 6

Gln Gln Arg Ser Ser Tyr Pro Phe Thr  
 1 5

<210> 7  
 <211> 117  
 <212> PRT  
 <213> Mouse

<400> 7

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Gly Ser Gly Ala  
 1 5 10 15  
 Ser Val Lys Leu Ser Cys Thr Thr Ser Gly Phe Asn Ile Lys Asp Phe  
 20 25 30  
 Tyr Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile  
 35 40 45  
 Gly Trp Ile Asp Pro Glu Asn Gly Asp Ser Gly Tyr Ala Pro Lys Phe  
 50 55 60  
 Gln Gly Lys Ala Thr Met Thr Ala Asp Ser Ser Ser Asn Thr Ala Tyr  
 65 70 75 80  
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Asn Ala Tyr Tyr Gly Asp Tyr Glu Gly Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Val Thr Val Ser Ser  
 115

<210> 8  
 <211> 108  
 <212> PRT  
 <213> Mouse

<400> 8

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
 1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
                   20                                  25                                  30  
 His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr  
                   35                                  40                                  45  
 Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
                   50                                  55                                  60  
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu  
                   65                                  70                                  75                                  80  
 Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr  
                                   85                                  90                                  95  
 Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala  
                   100                                  105

<210> 9  
 <211> 30  
 <212> DNA  
 <213> Mouse

<400> 9

ggc ttc aac att aaa gac ttc tat atg cac  
 Gly Phe Asn Ile Lys Asp Phe Tyr Met His  
   1                                  5                                  10                                  30

<210> 10  
 <211> 51  
 <212> DNA  
 <213> Mouse

<400> 10

tgg att gat cct gag aat ggt gat tct ggt tat gcc ccg aag ttc cag  
 Trp Ile Asp Pro Glu Asn Gly Asp Ser Gly Tyr Ala Pro Lys Phe Gln  
   1                                  5                                  10                                  15                                  48

ggc  
 Gly  
   17  51

<210> 11  
 <211> 24  
 <212> DNA  
 <213> Mouse

<400> 11

tac tat ggt gac tac gaa ggc tac  
 Tyr Tyr Gly Asp Tyr Glu Gly Tyr  
   1                                  5  24

<210> 12  
 <211> 30  
 <212> DNA  
 <213> Mouse

<400> 12

agt gcc agc tca agt gta agt tac atg cac  
 Ser Ala Ser Ser Ser Val Ser Tyr Met His  
 1 5 10

30

<210> 13  
 <211> 21  
 <212> DNA  
 <213> Mouse

&lt;400&gt; 13

agc aca tcc aac ctg gct tct  
 Ser Thr Ser Asn Leu Ala Ser  
 1 5

21

<210> 14  
 <211> 27  
 <212> DNA  
 <213> Mouse

&lt;400&gt; 14

cag caa agg agt agt tac cca ttc acg  
 Gln Gln Arg Ser Ser Tyr Pro Phe Thr  
 1 5

27

<210> 15  
 <211> 351  
 <212> DNA  
 <213> Mouse

&lt;400&gt; 15

cag gtc aag ctg cag cag tct ggg gca gag ctt gtg ggg tca ggg gcc  
 Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Gly Ser Gly Ala  
 1 5 10 15

48

tca gtc aaa ttg tcc tgc aca act tct ggc ttc aac att aaa gac ttc  
 Ser Val Lys Leu Ser Cys Thr Thr Ser Gly Phe Asn Ile Lys Asp Phe  
 20 25 30

96

tat atg cac tgg gtg aag cag agg cct gaa cag ggc ctg gag tgg att  
 Tyr Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile  
 35 40 45

144

gga tgg att gat cct gag aat ggt gat tct ggt tat gcc ccg aag ttc  
 Gly Trp Ile Asp Pro Glu Asn Gly Asp Ser Gly Tyr Ala Pro Lys Phe  
 50 55 60

192

cag ggc aag gcc acc atg act gca gac tca tcc tcc aac aca gcc tac  
 Gln Gly Lys Ala Thr Met Thr Ala Asp Ser Ser Ser Asn Thr Ala Tyr  
 65 70 75 80

240

ctg cag ctc agc agc ctg aca tct gag gac act gcc gtc tat tac tgt  
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

288

aat gca tac tat ggt gac tac gaa ggc tac tgg ggc caa ggg acc acg  
 Asn Ala Tyr Tyr Gly Asp Tyr Glu Gly Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110

336

gtc acc gtc tcc tca  
Val Thr Val Ser Ser  
115

351

<210> 16  
<211> 324  
<212> DNA  
<213> Mouse

<400> 16

gac atc gag ctc act cag tct cca gca atc atg tct gca tct cca ggg	48
Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly	
1 5 10 15	
gag aag gtc acc ata acc tgc agt gcc agc tca agt gta agt tac atg	96
Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met	
20 25 30	
cac tgg ttc cag cag aag cca ggc act tct ccc aaa ctc tgg att tat	144
His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr	
35 40 45	
agc aca tcc aac ctg gct tct gga gtc cct gct cgc ttc agt ggc agt	192
Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser	
50 55 60	
gga tct ggg acc tct tac tct ctc aca atc agc cga atg gag gct gaa	240
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu	
65 70 75 80	
gat gct gcc act tat tac tgc cag caa agg agt agt tac cca ttc acg	288
Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr	
85 90 95	
ttc ggc tcg ggg acc aag ctg gaa ata aaa cgg gcg	324
Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala	
100 105	

<210> 17  
<211> 15  
<212> PRT  
<213> Mouse

<400> 17

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 18  
<211> 45  
<212> DNA  
<213> Mouse

<400> 18

ggtaggagcg gttcaggcgg aggtggctct ggcggtaggcg gatcg	45
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<210> 19  
<211> 10  
<212> PRT

&lt;213&gt; Mouse

&lt;400&gt; 19

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 1 5 10

&lt;210&gt; 20

&lt;211&gt; 15

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;400&gt; 20

ggtaggagcg gttca

15

&lt;210&gt; 21

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;400&gt; 21

Trp Ile Asp Pro Glu Asn Gly Asp Ser Asp Tyr Ala Pro Lys Phe Gln  
 1 5 10 15

Gly  
 17

&lt;210&gt; 22

&lt;211&gt; 117

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;400&gt; 22

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Gly Ser Gly Ala  
 1 5 10 15

Ser Val Lys Leu Ser Cys Thr Thr Ser Gly Phe Asn Ile Lys Asp Phe  
 20 25 30

Tyr Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile  
 35 40 45

Gly Trp Ile Asp Pro Glu Asn Gly Asp Ser Asp Tyr Ala Pro Lys Phe  
 50 55 60

Gln Gly Lys Ala Thr Met Thr Ala Asp Ser Ser Ser Asn Thr Ala Tyr  
 65 70 75 80

Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Asn Ala Tyr Tyr Gly Asp Tyr Glu Gly Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110

Val Thr Val Ser Ser  
 115

&lt;210&gt; 23

<211> 106  
 <212> PRT  
 <213> Mouse

<400> 23

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
 1 5 10 15  
 Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
 20 25 30  
 His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr  
 35 40 45  
 Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
 50 55 60  
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu  
 65 70 75 80  
 Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr  
 85 90 95  
 Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
 100 105

<210> 24  
 <211> 51  
 <212> DNA  
 <213> Mouse

<400> 24

tggattgatc ctgagaatgg tgattctgat tatgccccga agttccaggg c 51

<210> 25  
 <211> 351  
 <212> DNA  
 <213> Mouse

<400> 25

cag gtc aag ctg cag cag tct ggg gca gag ctt gtg ggg tca ggg gcc 48  
 Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Gly Ser Gly Ala  
 1 5 10 15  
 tca gtc aaa ttg tcc tgc aca act tct ggc ttc aac att aaa gac ttc 96  
 Ser Val Lys Leu Ser Cys Thr Thr Ser Gly Phe Asn Ile Lys Asp Phe  
 20 25 30  
 tat atg cac tgg gtg aag cag agg cct gaa cag ggc ctg gag tgg att 144  
 Tyr Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile  
 35 40 45  
 gga tgg att gat cct gag aat ggt gat tct gat tat gcc ccg aag ttc 192  
 Gly Trp Ile Asp Pro Glu Asn Gly Asp Ser Asp Tyr Ala Pro Lys Phe  
 50 55 60  
 cag ggc aag gcc acc atg act gca gac tca tcc tcc aac aca gcc tac 240  
 Gln Gly Lys Ala Thr Met Thr Ala Asp Ser Ser Ser Asn Thr Ala Tyr  
 65 70 75 80

ctg cag ctc agc agc ctg aca tct gag gac act gcc gtc tat tac tgt 288  
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
                             85                            90                            95

aat gca tac tat ggt gac tac gaa ggc tac tgg ggc caa ggg acc acg 336  
 Asn Ala Tyr Tyr Gly Asp Tyr Glu Gly Tyr Trp Gly Gln Gly Thr Thr  
                             100                            105                            110

gtc acc gtc tcc tca 351  
 Val Thr Val Ser Ser  
                             115

<210> 26  
 <211> 318  
 <212> DNA  
 <213> Mouse

<400> 26

gac atc gag ctc act cag tct cca gca atc atg tct gca tct cca ggg 48  
 Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
           1                            5                            10                            15

gag aag gtc acc ata acc tgc agt gcc agc tca agt gta agt tac atg 96  
 Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
                             20                            25                            30

cac tgg ttc cag cag aag cca ggc act tct ccc aaa ctc tgg att tat 144  
 His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr  
                             35                            40                            45

agc aca tcc aac ctg gct tct gga gtc cct gct cgc ttc agt ggc agt 192  
 Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
           50                            55                            60

gga tct ggg acc tct tac tct ctc aca atc agc cga atg gag gct gaa 240  
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu  
           65                            70                            75                            80

gat gct gcc act tat tac tgc cag caa agg agt agt tac cca ttc acg 288  
 Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr  
                             85                            90                            95

ttc ggc tcg ggg acc aag ctg gaa ata aaa 318  
 Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
                             100                            105

<210> 27  
 <211> 240  
 <212> PRT  
 <213> Mouse

<400> 27

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Gly Ser Gly Ala  
           1                            5                            10                            15

Ser Val Lys Leu Ser Cys Thr Thr Ser Gly Phe Asn Ile Lys Asp Phe  
                             20                            25                            30

Tyr Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile  
           35                            40                            45



Gly Trp Ile Asp Pro Glu Asn Gly Asp Ser Gly Tyr Ala Pro Lys Phe  
 50 55 60  
 Gln Gly Lys Ala Thr Met Thr Ala Asp Ser Ser Ser Asn Thr Ala Tyr  
 65 70 75 80  
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Asn Ala Tyr Tyr Gly Asp Tyr Glu Gly Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser Gly  
 115 120 125  
 Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser  
 130 135 140  
 Ala Ser Pro Gly Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser  
 145 150 155 160  
 Val Ser Tyr Met His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys  
 165 170 175  
 Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg  
 180 185 190  
 Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg  
 195 200 205  
 Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser  
 210 215 220  
 Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala  
 225 230 235 240

<210> 28  
 <211> 238  
 <212> PRT  
 <213> Mouse

<400> 28

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Gly Ser Gly Ala  
 1 5 10 15  
 Ser Val Lys Leu Ser Cys Thr Thr Ser Gly Phe Asn Ile Lys Asp Phe  
 20 25 30  
 Tyr Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile  
 35 40 45  
 Gly Trp Ile Asp Pro Glu Asn Gly Asp Ser Asp Tyr Ala Pro Lys Phe  
 50 55 60  
 Gln Gly Lys Ala Thr Met Thr Ala Asp Ser Ser Ser Asn Thr Ala Tyr  
 65 70 75 80  
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Asn Ala Tyr Tyr Gly Asp Tyr Glu Gly Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 115 120 125

Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser  
 130 135 140

Ala Ser Pro Gly Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser  
 145 150 155 160

Val Ser Tyr Met His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys  
 165 170 175

Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg  
 180 185 190

Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg  
 195 200 205

Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser  
 210 215 220

Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
 225 230 235

<210> 29  
 <211> 43  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 29

ctagtagcaa ctgccaccgg cgtacattca cagggtcaagc tgc

43

<210> 30  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 30

tcgaaggatc actcaccttt tattttccagc

30

<210> 31  
 <211> 52  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 31

ggcctaaaagc ttatgggggat gggtcatgtat catccttttt ctagtagcaa ct

52

<210> 32  
 <211> 36  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Signal

<400> 32

tcgatctaga aggatccact cacgttttat ttccag

36

<210> 33  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> leader peptide

<400> 33

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly  
                   5                  10                  15

Val His Ser  
           19

<210> 34  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Synthetic primer

<400> 34

tctcggccgg cttaagctgc gcatgtgtga gt

32

<210> 35  
 <211> 11  
 <212> PRT  
 <213> Mouse

<400> 35

Ser Gly Phe Asn Ile Lys Asp Thr Tyr Ile His  
   1                  5                  10

<210> 36  
 <211> 17  
 <212> PRT  
 <213> Mouse

<400> 36

Gly Arg Ile Asp Pro Pro Asn Asp Asn Thr Lys Asp Pro Lys Phe Gln  
 1 5 10 15

Gly  
 17

<210> 37  
 <211> 7  
 <212> PRT  
 <213> Mouse

<400> 37

Pro Pro Phe Tyr Phe Asp Tyr  
 1 5

<210> 38  
 <211> 11  
 <212> PRT  
 <213> Mouse

<400> 38

Lys Ala Ser Gln Asn Val Asp Thr Asn Val Ala  
 1 5 10

<210> 39  
 <211> 7  
 <212> PRT  
 <213> Mouse

<400> 39

Ser Ala Ser Tyr Arg Tyr Ser  
 1 5

<210> 40  
 <211> 9  
 <212> PRT  
 <213> Mouse

<400> 40

Gln Gln Tyr Asn Ser Phe Pro Tyr Thr  
 1 5

<210> 41  
 <211> 116  
 <212> PRT  
 <213> Mouse

<400> 41

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala  
 1 5 10 15

Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr  
 20 25 30

Tyr Ile His Trp Val Lys Gln Ser Pro Glu Gln Gly Leu Glu Trp Ile  
           35                          40                          45  
 Gly Trp Ile Asp Pro Pro Asn Asp Asn Thr Lys Tyr Asp Pro Lys Phe  
           50                          55                          60  
 Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr  
           65                          70                          75                          80  
 Met Gln Leu Arg Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
                           85                          90                          95  
 Ala Leu Pro Pro Phe Tyr Phe Asp Tyr Trp Gly His Gly Thr Thr Val  
                           100                          105                          110  
 Thr Val Ser Ser  
           115

<210> 42  
 <211> 109  
 <212> PRT  
 <213> Mouse

<400> 42

Asp Ile Glu Leu Thr Gln Ser Pro Lys Phe Met Ser Thr Ser Val Gly  
   1                          5                          10                          15  
 Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val Asp Thr Asn  
           20                          25                          30  
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Ala Leu Ile  
           35                          40                          45  
 Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg Phe Thr Gly  
           50                          55                          60  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn Val Gln Ser  
           65                          70                          75                          80  
 Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Ser Phe Pro Tyr  
                           85                          90                          95  
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
           100                          105

<210> 43  
 <211> 33  
 <212> DNA  
 <213> Mouse

<400> 43

tct ggc ttc aac att aaa gac acc tat ata cac  
 Ser Gly Phe Asn Ile Lys Asp Thr Tyr Ile His  
   1                          5                          10

33

<210> 44  
 <211> 51  
 <212> DNA  
 <213> Mouse

&lt;400&gt; 44

gga agg atc gat cct ccg aat gat aat act aaa tat gac ccg aag ttc 48  
Gly Arg Ile Asp Pro Pro Asn Asp Asn Thr Lys Asp Pro Lys Phe Gln  
1 5 10 15

cag  
Gly 51  
17

&lt;210&gt; 45

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;400&gt; 45

cca ccc ttc tac ttt gac tac 21  
Pro Pro Phe Tyr Phe Asp Tyr  
1 5

&lt;210&gt; 46

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;400&gt; 46

aag gcc agt cag aat gtg gat act aat gta gcc 33  
Lys Ala Ser Gln Asn Val Asp Thr Asn Val Ala  
1 5 10

&lt;210&gt; 47

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;400&gt; 47

tcg gca tcc tac cgg tac agt 21  
Ser Ala Ser Tyr Arg Tyr Ser  
1 5

&lt;210&gt; 48

&lt;211&gt; 27

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;400&gt; 48

cag caa tat aac agc ttt cct tac acg 27  
Gln Gln Tyr Asn Ser Phe Pro Tyr Thr  
1 5

&lt;210&gt; 49

&lt;211&gt; 348

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;400&gt; 49

cag gtc aaa ctg cag cag tct ggg gca gag ctt gtc aag cca ggg gcc Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala 1 5 10 15	48
tca gtc aag ttg tcc tgc aca gct tct ggc ttc aac att aaa gac acc Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr 20 25 30	96
tat ata cac tgg gtg aag cag agc cct gaa cag ggc ctg gag tgg att Tyr Ile His Trp Val Lys Gln Ser Pro Glu Gln Gly Leu Glu Trp Ile 35 40 45	144
gga agg atc gat cct ccg aat gat aat act aaa tat gac ccg aag ttc Gly Trp Ile Asp Pro Pro Asn Asp Asn Thr Lys Tyr Asp Pro Lys Phe 50 55 60	192
cag ggc aag gcc act ata aca gca gac aca tcc tcc aat aca gcc tac Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr 65 70 75 80	240
atg cag ctc cgc agc ctg aca tct gag gac act gcc gtc tat tac tgt Met Gln Leu Arg Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95	288
gcc ctc cca ccg ttc tac ttt gac tac tgg ggc cat ggc acc acg gtc Ala Leu Pro Pro Phe Tyr Phe Asp Tyr Trp Gly His Gly Thr Thr Val 100 105 110	336
acc gtc tcc tca Thr Val Ser Ser 115	348
<210> 50	
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<212> DNA	
<213> Mouse	
<400> 50	
gac atc gag ctc act cag tct cca aaa ttc atg tcc aca tca gta gga Asp Ile Glu Leu Thr Gln Ser Pro Lys Phe Met Ser Thr Ser Val Gly 1 5 10 15	48
gac agg gtc agc gtc acc tgc aag gcc agt cag aat gtg gat act aat Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val Asp Thr Asn 20 25 30	96
gta gcc tgg tat caa cag aaa cca ggg caa tct cct aaa gca ctg att Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Ala Leu Ile 35 40 45	144
tac tcg gca tcc tac cgg tac agt gga gtc cct gat cgc ttc aca ggc Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg Phe Thr Gly 50 55 60	192
agt gga tct ggg aca gat ttc act ctc acc atc agc aat gtg cag tct Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn Val Gln Ser 65 70 75 80	240
gaa gac ttg gca gag tat ttc tgt cag caa tat aac agc ttt cct tac Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Ser Phe Pro Tyr 85 90 95	288

acg ttc gga ggg ggg acc aag ctg gaa ata aaa cgg gcg  
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
                   100                  105

327

<210> 51  
 <211> 240  
 <212> PRT  
 <213> Mouse

<400> 51

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala  
   1                  5                  10                  15  
 Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr  
                   20                  25                  30  
 Tyr Ile His Trp Val Lys Gln Ser Pro Glu Gln Gly Leu Glu Trp Ile  
                   35                  40                  45  
 Gly Trp Ile Asp Pro Pro Asn Asp Asn Thr Lys Tyr Asp Pro Lys Phe  
                   50                  55                  60  
 Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr  
   65                  70                  75                  80  
 Met Gln Leu Arg Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
                   85                  90                  95  
 Ala Leu Pro Pro Phe Tyr Phe Asp Tyr Trp Gly His Gly Thr Thr Val  
                   100                  105                  110  
 Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly  
                   115                  120                  125  
 Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Lys Phe Met Ser Thr  
                   130                  135                  140  
 Ser Val Gly Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val  
   145                  150                  155                  160  
 Asp Thr Asn Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys  
                   165                  170                  175  
 Ala Leu Ile Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg  
                   180                  185                  190  
 Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn  
                   195                  200                  205  
 Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Ser  
                   210                  215                  220  
 Phe Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
   225                  230                  235                  240

<210> 52  
 <211> 720  
 <212> DNA  
 <213> Mouse

<400> 52



cag gtc aaa ctg cag cag tct ggg gca gag ctt gtc aag cca ggg gcc Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala 1 5 10 15	48
tca gtc aag ttg tcc tgc aca gct tct ggc ttc aac att aaa gac acc Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr 20 25 30	96
tat ata cac tgg gtg aag cag agc cct gaa cag ggc ctg gag tgg att Tyr Ile His Trp Val Lys Gln Ser Pro Glu Gln Gly Leu Glu Trp Ile 35 40 45	144
gga agg atc gat cct ccg aat gat aat act aaa tat gac ccg aag ttc Gly Trp Ile Asp Pro Pro Asn Asp Asn Thr Lys Tyr Asp Pro Lys Phe 50 55 60	192
cag ggc aag gcc act ata aca gca gac aca tcc tcc aat aca gcc tac Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr 65 70 75 80	240
atg cag ctc cgc agc ctg aca tct gag gac act gcc gtc tat tac tgt Met Gln Leu Arg Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95	288
gcc ctc cca ccg ttc tac ttt gac tac tgg ggc cat ggc acc acg gtc Ala Leu Pro Phe Tyr Phe Asp Tyr Trp Gly His Gly Thr Thr Val 100 105 110	336
acc gtc tcc tca ggt gga ggc ggt tca ggc gga ggg ggc tct ggc ggt Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly 115 120 125	384
ggc gga tgc gac atc gag ctc act cag tct cca aaa ttc atg tcc aca Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Lys Phe Met Ser Thr 130 135 140	432
tca gta gga gac agg gtc agc gtc acc tgc aag gcc agt cag aat gtg Ser Val Gly Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val 145 150 155 160	480
gat act aat gta gcc tgg tat caa cag aaa cca ggg caa tct cct aaa Asp Thr Asn Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys 165 170 175	528
gca ctg att tac tgc gca tcc tac cgg tac agt gga gtc cct gat cgc Ala Leu Ile Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg 180 185 190	576
ttc aca ggc agt gga tct ggg aca gat ttc act ctc acc atc agc aat Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn 195 200 205	624
gtg cag tct gaa gac ttg gca gag tat ttc tgt cag caa tat aac agc Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Ser 210 215 220	672
ttt cct tac acg ttc gga ggg ggg acc aag ctg gaa ata aaa cgg gcg Phe Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala 225 230 235 240	720

&lt;210&gt; 53

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 53

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala  
5 10

&lt;210&gt; 54

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 54

Asp Ser Ser Asn Arg Ala Thr  
5

&lt;210&gt; 55

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 55

Leu Gln His Asn Thr Phe Pro Pro Thr  
5

&lt;210&gt; 56

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 56

Arg Ala Ser Gln Gly Ile Ser Ser Arg Leu Ala  
5 10

&lt;210&gt; 57

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 57

Ala Ala Ser Ser Leu Gln Thr  
5

&lt;210&gt; 58

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 58

Gln Gln Ala Asn Arg Phe Pro Pro Thr  
5

&lt;210&gt; 59

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 59

Ala Gly Thr Thr Thr Asp Leu Thr Tyr Tyr Asp Leu Val Ser  
5 10

&lt;210&gt; 60

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 60

Asp Gly Asn Lys Arg Pro Ser  
5

&lt;210&gt; 61

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 61

Asn Ser Tyr Val Ser Ser Arg Phe Tyr Val  
5 10

&lt;210&gt; 62

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 62

Ser Gly Ser Thr Ser Asn Ile Gly Thr Asn Thr Ala Asn  
5 10

&lt;210&gt; 63

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 63

Asn Asn Asn Gln Arg Pro Ser  
5

&lt;210&gt; 64

&lt;211&gt; 12

&lt;212&gt; PRT

&lt;213&gt; uman

&lt;400&gt; 64

Ala Ala Trp Asp Asp Ser Leu Asn Gly His Trp Val  
5 10

&lt;210&gt; 65

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 65

Gly Phe Thr Phe Ser Ser Tyr Ser Met Asn  
5 10

&lt;210&gt; 66

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 66

Ser Ile Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val Lys  
5 10 15

Gly  
17

&lt;210&gt; 67

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 67

Val Thr Asp Ala Phe Asp Ile  
5

&lt;210&gt; 68

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 68

Gly Gly Thr Phe Ser Ser Tyr Ala Ile Ser  
5 10

&lt;210&gt; 69

&lt;211&gt; 18

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 69

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe  
5 10 15

Gln Gly  
18

&lt;210&gt; 70

&lt;211&gt; 16

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 70

Gly Tyr Asp Tyr Tyr Asp Ser Ser Gly Val Ala Ser Pro Phe Asp Tyr  
5 10 15



Ala Arg Gly Tyr Asp Tyr Tyr Asp Ser Ser Gly Val Ala Ser Pro Phe  
 100 105 110

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
 115 120 125

<210> 73  
 <211> 333  
 <212> DNA  
 <213> Human

<400> 73

cag tct gtg ctg act cag cca ccc tca gcg tct ggg acc ccc ggg cag 48  
 Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln  
 5 10 15

agg gtc acc atc tct tgt tct gga agc acc tcc aac atc ggt act aat 96  
 Arg Val Thr Ile Ser Cys Ser Gly Ser Thr Ser Asn Ile Gly Thr Asn  
 20 25 30

act gca aac tgg ttc cag cag ctc cca gga acg gcc ccc aaa ctc ctc 144  
 Thr Ala Asn Trp Phe Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu  
 35 40 45

atc cac aat aat aat cag cgg ccc tca ggg gtc cct gac cga ttc tct 192  
 Ile His Asn Asn Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
 50 55 60

ggc tcc aag tct ggc acc tca gcc tcc ctg gcc atc agt ggg ctc cag 240  
 Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln  
 65 70 75 80

tct gag gat gag gct gat tat tac tgt gca gca tgg gat gac agc ctg 288  
 Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu  
 85 90 95

aat ggc cat tgg gtg ttc ggc gga ggg acc aag ctg acc gtc ctg 333  
 Asn Gly His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
 100 105 110

<210> 74  
 <211> 111  
 <212> PRT  
 <213> Human

<400> 74

Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln  
 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Ser Thr Ser Asn Ile Gly Thr Asn  
 20 25 30

Thr Ala Asn Trp Phe Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu  
 35 40 45

Ile His Asn Asn Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
 50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln  
 65 70 75 80

Asn Gly His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210>	75
<211>	348
<212>	DNA
<213>	Human

<400> 75

gag gtg cag ctg gtg cag tct ggg gga ggc ctg gtc aag cct ggg ggg 48  
Glu Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Lys Pro Gly Gly  
5 10 15

tcc	ctg	aga	ctc	tcc	tgt	gca	gcc	tct	gga	ttc	acc	ttc	agt	agc	tat	96
Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr	
			20					25					30			

agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc 144  
 Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

tca tcc att agt agt agt agt agt tac ata tac tac gca gac tca gtg 192  
Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
50 55 60

aag ggc cga ttc acc atc tcc aga gac aac gcc aag aac tca ctg tat 240  
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr  
65 70 75 80

ctg	caa	atg	aac	agc	ctg	aga	gcc	gag	gac	acg	gct	gtg	tat	tac	tgt	288
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
				85					90					95		

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc 336  
Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
100 105 110

acc gtc tca agc  
Thr Val Ser Ser 348  
115

<210>	76
<211>	116
<212>	PRT
<213>	Human

<400> 76

Glu Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Lys Pro Gly Gly  
5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
20 25 30

Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val

50

55

60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
 100 105 110

Thr Val Ser Ser  
 115

&lt;210&gt; 77

&lt;211&gt; 321

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 77

gaa att gtg atg aca cag tct cca gcc acc ctg tct ttg tct cca ggg 48  
 Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly  
 5 10 15

gaa aga gcc acc ctc tcc tgc agg gcc agt cag agt gtt agc agc tac 96  
 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr  
 20 25 30

tta gcc tgg tac caa cag aaa cct ggc cag gct ccc agg ctc ctc atc 144  
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile  
 35 40 45

tat gat tca tcc aac agg gcc act ggc atc cca gcc aga ttc agt ggc 192  
 Tyr Asp Ser Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly  
 50 55 60

agt ggg tct ggg aca gac ttc act ctc acc atc agc agc cta gag cct 240  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro  
 65 70 75 80

gaa gat ttt gca act tat tac tgt cta cag cat aac act ttt cct ccg 288  
 Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Thr Phe Pro Pro  
 85 90 95

acg ttc ggc caa ggg acc aag gtg gaa atc aaa 321  
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
 100 105

&lt;210&gt; 78

&lt;211&gt; 107

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 78

Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly  
 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr  
 20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile



35

40

45

Tyr Asp Ser Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly  
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro  
 65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Thr Phe Pro Pro  
 85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
 100 105

&lt;210&gt; 79

&lt;211&gt; 348

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 79

gag gtc cag ctg gtg cag tct ggg gga ggc ctg gtc aag cct ggg ggg 48  
 Glu Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Lys Pro Gly Gly  
 5 10 15

tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ttc agt agc tat 96  
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc 144  
 Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

tca tcc att agt agt agt agt agt tac ata tac tac gca gac tca gtg 192  
 Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
 50 55 60

aag ggc cga ttc acc atc tcc aga gac aac gcc aag aac tca ctg tat 240  
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr  
 65 70 75 80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt 288  
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc 336  
 Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
 100 105 110

acc gtc tca agc  
 Thr Val Ser Ser 348  
 115

&lt;210&gt; 80

&lt;211&gt; 330

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 80

cag tct gcc ctg act cag cct gcc tcc ctg tct ggg tct cct gga cag 48  
 Gln Ser Ala Leu Thr Gln Pro Ala Ser Leu Ser Gly Ser Pro Gly Gln  
 5 10 15

tcg atc acc atc tcc tgc gct gga acc acc act gat ctt aca tat tat 96  
 Ser Ile Thr Ile Ser Cys Ala Gly Thr Thr Thr Asp Leu Thr Tyr Tyr  
                   20                                  25                                  30

gac ctt gtc tcc tgg tac caa cag cac cca ggc caa gca ccc aaa ctc 144  
 Asp Leu Val Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu  
                   35                                  40                                  45

gtg att tat gac ggc aat aag cgg ccc tca gga gtt tct aat cgc ttc 192  
 Val Ile Tyr Asp Gly Asn Lys Arg Pro Ser Gly Val Ser Asn Arg Phe  
                   50                                  55                                  60

tct ggc tcc aag tct ggc aac acg gcc tcc ctg aca atc tct gga ctc 240  
 Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu  
                   65                                  70                                  75                                  80

cag gct gag gac gag gct gat tat tac tgc aac tca tat gta agc agc 288  
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Val Ser Ser  
                                   85                                  90                                  95

agg ttt tat gtc ttc gga act ggg acc aag gtc acc gtc cta 330  
 Arg Phe Tyr Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu  
                   100                                  105                                  110

<210> 81  
 <211> 110  
 <212> PRT  
 <213> Human

<400> 81

Gln Ser Ala Leu Thr Gln Pro Ala Ser Leu Ser Gly Ser Pro Gly Gln  
                                   5                                  10                                  15

Ser Ile Thr Ile Ser Cys Ala Gly Thr Thr Thr Asp Leu Thr Tyr Tyr  
                   20                                  25                                  30

Asp Leu Val Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu  
                   35                                  40                                  45

Val Ile Tyr Asp Gly Asn Lys Arg Pro Ser Gly Val Ser Asn Arg Phe  
                   50                                  55                                  60

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu  
                   65                                  70                                  75                                  80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Val Ser Ser  
                                   85                                  90                                  95

Arg Phe Tyr Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu  
                   100                                  105                                  110

<210> 82  
 <211> 348  
 <212> DNA  
 <213> Human

<400> 82

gaa gtg cag ctg gtg cag tct ggg gga ggc ctg gtc aag cct ggg ggg 48  
 Glu Val Gln Leu Val Gln Ser Gly Gly Leu Val Lys Pro Gly Gly  
                                   5                                  10                                  15

tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ttc agt agc tat 96  
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30  
 agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc 144  
 Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45  
 tca tcc att agt agt agt agt agt tac ata tac tac gca gac tca gtg 192  
 Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
 50 55 60  
 aag ggc cga ttc acc atc tcc aga gac aac gcc aag gac tca ctg tat 240  
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr  
 65 70 75 80  
 ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt 288  
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc 336  
 Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
 100 105 110  
 acc gtc tca agc 348  
 Thr Val Ser Ser  
 115

<210> 83  
 <211> 116  
 <212> PRT  
 <213> Human

<400> 83

Glu Val Gln Leu Val Gln Ser Gly Gly Gly Leu Val Lys Pro Gly Gly  
 5 10 15  
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30  
 Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ser Ser Ile Ser Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
 50 55 60  
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr  
 65 70 75 80  
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
 100 105 110  
 Thr Val Ser Ser  
 115

<210> 84  
 <211> 321  
 <212> DNA  
 <213> Human

&lt;400&gt; 84

gac atc cag ttg acc cag tct cca tct tct gtg tct gca tct gta gga 48  
 Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
                     5                                    10                                    15

gac aga gtc acc atc act tgt cgg gcg agt cag ggt att agt agt cgg 96  
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Arg  
                     20                                    25                                    30

tta gcc tgg tat cag cag aaa cca ggg aaa gcc cct aag ctc ctg atc 144  
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
                     35                                    40                                    45

tat gct gca tcc agt ttg caa act ggg gtc cca tca agg ttc agc ggc 192  
 Tyr Ala Ala Ser Ser Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly  
                     50                                    55                                    60

agt gga tct ggg aca gat ttc act ctc act atc agc agc ctg cag cct 240  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
 65                                    70                                    75                                    80

gaa gat ttt gca act tac tat tgt caa cag gct aac agg ttc cct ccg 288  
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ala Asn Arg Phe Pro Pro  
                                     85                                    90                                    95

act ttc ggc cct ggg acc aaa gtg gat atc aaa 321  
 Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys  
                     100                                    105

&lt;210&gt; 85

&lt;211&gt; 107

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 85

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
                     5                                    10                                    15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Arg  
                     20                                    25                                    30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
                     35                                    40                                    45

Tyr Ala Ala Ser Ser Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly  
                     50                                    55                                    60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
 65                                    70                                    75                                    80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ala Asn Arg Phe Pro Pro  
                                     85                                    90                                    95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys  
                     100                                    105

&lt;210&gt; 86

&lt;211&gt; 333

&lt;212&gt; DNA

&lt;213&gt; Human

cag	tct	gtc	gtg	acg	cag	cgc	ccc	tca	gtg	tct	ggg	gcc	cca	ggg	cag	48
Gln	Ser	Val	Val	Thr	Gln	Pro	Pro	Ser	Val	Ser	Gly	Ala	Pro	Gly	Gln	
				5					10					15		
agg	gtc	acc	atc	tcc	tgc	act	ggg	agc	cac	tcc	aac	ttc	ggg	gca	gga	96
Arg	Val	Thr	Ile	Ser	Cys	Thr	Gly	Ser	His	Ser	Asn	Phe	Gly	Ala	Gly	
			20					25					30			
act	gat	gta	cat	tgg	tac	caa	cac	ctt	cca	gga	aca	gcc	ccc	aga	ctc	144
Thr	Asp	Val	His	Trp	Tyr	Gln	His	Leu	Pro	Gly	Thr	Ala	Pro	Arg	Leu	
		35					40					45				
ctc	att	cat	gga	gac	agt	aat	cgg	ccc	tcc	ggg	gtc	cct	gac	cga	ttc	192
Leu	Ile	His	Gly	Asp	Ser	Asn	Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	
	50					55					60					
tct	ggc	tcc	agg	tct	ggc	acc	tca	gcc	tcc	ctg	gcc	atc	act	ggg	ctc	240
Ser	Gly	Ser	Arg	Ser	Gly	Thr	Ser	Ala	Ser	Leu	Ala	Ile	Thr	Gly	Leu	
65					70					75					80	
cgg	gtt	gag	gat	gag	gct	gat	tat	tac	tgt	cag	tcg	tat	gac	tat	ggc	288
Arg	Val	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Tyr	Asp	Tyr	Gly	
				85					90					95		
ctg	aga	ggt	tgg	gtg	ttc	ggc	ggc	ggg	acc	aag	ctg	acc	gtc	ctt		333
Leu	Arg	Gly	Trp	Val	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu		
			100					105					110			

<400> 87

<210> 88  
<211> 321  
<212> DNA  
<213> Human

&lt;400&gt; 88

gat gtt gtg atg act cag tct cca tcg tcc ctg tct gca tct gta ggg 48  
 Asp Val Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
                   5                  10                  15

gac aga gtc acc atc act tgc cgg gca agt cag aac att aac aac tat 96  
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Tyr  
                   20                  25                  30

tta aat tgg tat caa cag aaa cca gga aaa gcc cct aag ctc ctg atc 144  
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
                   35                  40                  45

tat gct gcc tcc act ttg caa agt ggg gtc cca tca agg ttc agt ggc 192  
 Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
                   50                  55                  60

agt gga tct ggg aca gat ttc act ctc acc atc acc agc cta cag cct 240  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Pro  
                   65                  70                  75                  80

gaa gat tct gca act tat tac tgc caa cag tat tcc cgt tat cct ccc 288  
 Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Arg Tyr Pro Pro  
                   85                  90                  95

act ttc ggc gga ggg acc aag gtg gag atc aca 321  
 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Thr  
                   100                  105

&lt;210&gt; 89

&lt;211&gt; 107

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 89

Asp Val Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
                   5                  10                  15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Tyr  
                   20                  25                  30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
                   35                  40                  45

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
                   50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Pro  
                   65                  70                  75                  80

Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Arg Tyr Pro Pro  
                   85                  90                  95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Thr  
                   100                  105

&lt;210&gt; 90

&lt;211&gt; 330

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 90

cag tct gcc ctg act cag cct gcc tcc gtg tct ggg tct cgt gga cag 48  
 Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Arg Gly Gln  
                     5                    10                    15

tcg atc acc ctc tcc tgc acc ggc tcc agc act gat gtg ggt aat tat 96  
 Ser Ile Thr Leu Ser Cys Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr  
                     20                    25                    30

aac tat atc tcc tgg tac caa caa cac cca ggc caa gcc ccc aaa ctc 144  
 Asn Tyr Ile Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu  
                     35                    40                    45

ttg att tac gat gtc act agt cgg ccc tca ggt gtt tct gat cgc ttc 192  
 Leu Ile Tyr Asp Val Thr Ser Arg Pro Ser Gly Val Ser Asp Arg Phe  
                     50                    55                    60

tct ggc tcc aag tca ggc ctc acg gcc tcc ctg acc atc tct gga ctc 240  
 Ser Gly Ser Lys Ser Gly Leu Thr Ala Ser Leu Thr Ile Ser Gly Leu  
                     65                    70                    75                    80

cag cct gaa gac gag gct gac tat tac tgc aac tcc tat tct gcc acc 288  
 Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Ser Ala Thr  
                     85                    90                    95

gac act ctt gtt ttt ggc gga ggg acc aag ctg acc gtc cta 330  
 Asp Thr Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
                     100                    105                    110

&lt;210&gt; 91

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 91

Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Arg Gly Gln  
                     5                    10                    15

Ser Ile Thr Leu Ser Cys Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr  
                     20                    25                    30

Asn Tyr Ile Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu  
                     35                    40                    45

Leu Ile Tyr Asp Val Thr Ser Arg Pro Ser Gly Val Ser Asp Arg Phe  
                     50                    55                    60

Ser Gly Ser Lys Ser Gly Leu Thr Ala Ser Leu Thr Ile Ser Gly Leu  
                     65                    70                    75                    80

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Ser Ala Thr  
                     85                    90                    95

Asp Thr Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
                     100                    105                    110

&lt;210&gt; 92

&lt;211&gt; 333

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 92

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cag gct gtg ctg act cag ccg tcc tca gtg tct ggg gcc cca gga cag      48
Gln Ala Val Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln
                    5                      10                      15

agg gtc acc atc tcc tgc act ggg caa agc tcc aat atc ggg gca gat      96
Arg Val Thr Ile Ser Cys Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp
                    20                      25                      30

tat gat gta cat tgg tac cag caa ttt cca gga aca gcc ccc aaa ctc      144
Tyr Asp Val His Trp Tyr Gln Gln Phe Pro Gly Thr Ala Pro Lys Leu
                    35                      40                      45

ctc atc tat ggt cac aac aat cgg ccc tca ggg gtc cct gac cga ttc      192
Leu Ile Tyr Gly His Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
                    50                      55                      60

tct ggc tcc aag tct ggc acc tca gtc tcc ctg gtc atc agt ggg ctc      240
Ser Gly Ser Lys Ser Gly Thr Ser Val Ser Leu Val Ile Ser Gly Leu
                    65                      70                      75                      80

cag gct gag gat gag gct gat tat tat tgc cag tcc tat gac agc agt      288
Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
                    85                      90                      95

cta agt ggt ttg gta ttc ggc gga ggg acc aag gtg acc gtc cta      333
Leu Ser Gly Leu Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu
                    100                      105                      110

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&lt;210&gt; 93

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 93

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Gln Ala Val Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln
                    5                      10                      15

Arg Val Thr Ile Ser Cys Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp
                    20                      25                      30

Tyr Asp Val His Trp Tyr Gln Gln Phe Pro Gly Thr Ala Pro Lys Leu
                    35                      40                      45

Leu Ile Tyr Gly His Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
                    50                      55                      60

Ser Gly Ser Lys Ser Gly Thr Ser Val Ser Leu Val Ile Ser Gly Leu
                    65                      70                      75                      80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
                    85                      90                      95

Leu Ser Gly Leu Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu
                    100                      105                      110

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&lt;210&gt; 94

&lt;211&gt; 321

&lt;212&gt; DNA

&lt;213&gt; Human



&lt;400&gt; 94

gac atc cag ttg acc cag tct cca tct tct gtg tct gca tct gtt gga 48  
 Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
                   5                                  10                                  15

gac agc gtc acc atc act tgt cgg gcg agt cag gat att agc agc tgg 96  
 Asp Ser Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Trp  
                   20                                  25                                  30

tta gcc tgg tat caa cag aaa cca ggg gag gcc cct aag ctc ctg atc 144  
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu Leu Ile  
                   35                                  40                                  45

tat gct gca tcc ctt ctt caa agt ggg gtc cca tca cgg ttc agc ggc 192  
 Tyr Ala Ala Ser Leu Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
                   50                                  55                                  60

agt gga tct ggg aca gat ttc gct ctc act atc aac agc ctg cag cct 240  
 Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Asn Ser Leu Gln Pro  
                   65                                  70                                  75                                  80

gaa gat ttt gca act tac ttt tgt caa cag gct gac agt ttc cct ccc 288  
 Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ala Asp Ser Phe Pro Pro  
                   85                                  90                                  95

acc ttc ggc caa ggg aca cgg ctg gag att aaa 321  
 Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys  
                   100                                  105

&lt;210&gt; 95

&lt;211&gt; 107

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 95

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
                   5                                  10                                  15

Asp Ser Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Trp  
                   20                                  25                                  30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu Leu Ile  
                   35                                  40                                  45

Tyr Ala Ala Ser Leu Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
                   50                                  55                                  60

Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Asn Ser Leu Gln Pro  
                   65                                  70                                  75                                  80

Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ala Asp Ser Phe Pro Pro  
                   85                                  90                                  95

Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys  
                   100                                  105

&lt;210&gt; 96

&lt;211&gt; 321

&lt;212&gt; DNA

&lt;213&gt; Human

<210>	98
<211>	333
<212>	DNA
<213>	Human

&lt;400&gt; 98

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cag tct gtc gtg acg cag ccg ccc tca gtg tct ggg gcc cca ggg cag      48
Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
                    5                      10                      15

agg gtc acc atc tcc tgc agt ggg agc agg tcc aac atc ggg gca cac      96
Arg Val Thr Ile Ser Cys Ser Gly Ser Arg Ser Asn Ile Gly Ala His
                    20                      25                      30

tat gaa gtc cag tgg tac cag cag ttt ccg gga gca gcc ccc aaa ctc      144
Tyr Glu Val Gln Trp Tyr Gln Gln Phe Pro Gly Ala Ala Pro Lys Leu
                    35                      40                      45

ctc atc tat ggt gac acc aat cgg ccc tca ggg gtc cct gac cga ttc      192
Leu Ile Tyr Gly Asp Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
                    50                      55                      60

tct gcc tcc cac tct ggc acc tca gcc tcc ctt gcc atc aca ggg ctc      240
Ser Ala Ser His Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
                    65                      70                      75                      80

cag gct gag gat gag gct gat tat tac tgc cag tcg tat gac acc agt      288
Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Thr Ser
                    85                      90                      95

cta cgt ggt ccg gtg ttc ggc gga ggg acc aag ctg acc gtc cta      333
Leu Arg Gly Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
                    100                      105                      110

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&lt;210&gt; 99

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 99

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Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
                    5                      10                      15

Arg Val Thr Ile Ser Cys Ser Gly Ser Arg Ser Asn Ile Gly Ala His
                    20                      25                      30

Tyr Glu Val Gln Trp Tyr Gln Gln Phe Pro Gly Ala Ala Pro Lys Leu
                    35                      40                      45

Leu Ile Tyr Gly Asp Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe
                    50                      55                      60

Ser Ala Ser His Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu
                    65                      70                      75                      80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Thr Ser
                    85                      90                      95

Leu Arg Gly Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
                    100                      105                      110

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&lt;210&gt; 100

&lt;211&gt; 333

&lt;212&gt; DNA

&lt;213&gt; Human

<210>	102
<211>	333
<212>	DNA
<213>	Human

<210>	104
<211>	321
<212>	DNA
<213>	Human

<210>	106
<211>	13
<212>	PRT
<213>	Human

&lt;400&gt; 106

Thr Gly Ser His Ser Asn Phe Gly Ala Gly Thr Asp Val  
5 10

&lt;210&gt; 107

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 107

Gly Asp Ser Asn Arg Pro Ser  
5

&lt;210&gt; 108

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 108

Gln Ser Tyr Asp Tyr Gly Leu Arg Gly Trp Val  
5 10

&lt;210&gt; 109

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 109

Arg Ala Ser Gln Asn Ile Asn Asn Tyr Leu Asn  
5 10

&lt;210&gt; 110

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 110

Ala Ala Ser Thr Leu Gln Ser  
5

&lt;210&gt; 111

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 111

Gln Gln Tyr Ser Arg Tyr Pro Pro Thr  
5

&lt;210&gt; 112

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 112

Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr Asn Tyr Ile Ser  
5 10

&lt;210&gt; 113

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 113

Asp Val Thr Ser Arg Pro Ser  
5

&lt;210&gt; 114

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 114

Asn Ser Tyr Ser Ala Thr Asp Thr Leu Val  
5 10

&lt;210&gt; 115

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 115

Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp Tyr Asp Val His  
5 10

&lt;210&gt; 116

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 116

Gly His Asn Asn Arg Pro Ser  
5

&lt;210&gt; 117

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 117

Gln Ser Tyr Asp Ser Ser Leu Ser Gly Leu Val  
5 10

&lt;210&gt; 118

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human



&lt;400&gt; 118

Arg Ala Ser Gln Asp Ile Ser Ser Trp Leu Ala  
5 10

&lt;210&gt; 119

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 119

Ala Ala Ser Leu Leu Gln Ser  
5

&lt;210&gt; 120

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 120

Gln Gln Ala Asp Ser Phe Pro Pro Thr  
5

&lt;210&gt; 121

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 121

Arg Ala Ser Gln Ser Ile Lys Arg Trp Leu Ala  
5 10

&lt;210&gt; 122

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 122

Ala Ala Ser Thr Leu Gln Ser  
5

&lt;210&gt; 123

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 123

Gln Gln Ala Asn Ser Phe Pro Pro Thr  
5

&lt;210&gt; 124

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 124

Ser Gly Ser Arg Ser Asn Ile Gly Ala His Tyr Glu Val Gln  
5 10

&lt;210&gt; 125

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 125

Gly Asp Thr Asn Arg Pro Ser  
5

&lt;210&gt; 126

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 126

Gln Ser Tyr Asp Thr Ser Leu Arg Gly Pro Val  
5 10

&lt;210&gt; 127

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 127

Thr Gly Ser Ser Ser Asn Ile Gly Thr Gly Tyr Asp Val His  
5 10

&lt;210&gt; 128

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 128

Ala Tyr Thr Asn Arg Pro Ser  
5

&lt;210&gt; 129

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 129

Gln Ser Phe Asp Asp Ser Leu Asn Gly Leu Val  
5 10

&lt;210&gt; 130

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 130

Thr Gly Ser His Ser Asn Phe Gly Ala Gly Thr Asp Val His  
5 10

&lt;210&gt; 131

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 131

Gly Asp Thr His Arg Pro Ser  
5

&lt;210&gt; 132

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 132

Gln Ser Tyr Asp Tyr Gly Leu Arg Gly Trp Val  
5 10

&lt;210&gt; 133

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 133

Arg Ala Ser Gln Gly Ile Asp Asn Trp Leu Gly  
5 10

&lt;210&gt; 134

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 134

Asp Ala Ser Asn Leu Asp Thr  
5

&lt;210&gt; 135

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 135

Gln Gln Ala Lys Ala Phe Pro Pro Thr  
5

&lt;210&gt; 136

&lt;211&gt; 2351

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 136

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ggtaccgag aaagaaccgg ctcccgagtt ctgggcattt cgcccggctc gaggtgcagg      59

atg cag agc aag gtg ctg ctg gcc gtc gcc ctg tgg ctc tgc gtg gag      107
Met Gln Ser Lys Val Leu Leu Ala Val Ala Leu Trp Leu Cys Val Glu
                    5                      10                      15

acc cgg gcc gcc tct gtg ggt ttg cct agt gtt tct ctt gat ctg ccc      155
Thr Arg Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro
                    20                      25                      30

agg ctc agc ata caa aaa gac ata ctt aca att aag gct aat aca act      203
Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr
                    35                      40                      45

ctt caa att act tgc agg gga cag agg gac ttg gac tgg ctt tgg ccc      251
Leu Gln Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro
                    50                      55                      60

aat aat cag agt ggc agt gag caa agg gtg gag gtg act gag tgc agc      299
Asn Asn Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser
                    65                      70                      75                      80

gat ggc ctc ttc tgt aag aca ctc aca att cca aaa gtg atc gga aat      347
Asp Gly Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn
                    85                      90                      95

gac act gga gcc tac aag tgc ttc tac cgg gaa act gac ttg gcc tcg      395
Asp Thr Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser
                    100                      105                      110

gtc att tat gtc tat gtt caa gat tac aga tct cca ttt att gct tct      443
Val Ile Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser
                    115                      120                      125

gtt agt gac caa cat gga gtc gtg tac att act gag aac aaa aac aaa      491
Val Ser Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys
                    130                      135                      140

act gtg gtg att cca tgt ctc ggg tcc att tca aat ctc aac gtg tca      539
Thr Val Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser
                    145                      150                      155                      160

ctt tgt gca aga tac cca gaa aag aga ttt gtt cct gat ggt aac aga      587
Leu Cys Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg
                    165                      170                      175

att tcc tgg gac agc aag aag ggc ttt act att ccc agc tac atg atc      635
Ile Ser Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile
                    180                      185                      190

agc tat gct ggc atg gtc ttc tgt gaa gca aaa att aat gat gaa agt      683
Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser
                    195                      200                      205

tac cag tct att atg tac ata gtt gtc gtt gta ggg tat agg att tat      731
Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr
                    210                      215                      220

gat gtg gtt ctg agt ccg tct cat gga att gaa cta tct gtt gga gaa      779
Asp Val Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu
                    225                      230                      235                      240

aag ctt gtc tta aat tgt aca gca aga act gaa cta aat gtg ggg att      827

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Lys	Leu	Val	Leu	Asn	Cys	Thr	Ala	Arg	Thr	Glu	Leu	Asn	Val	Gly	Ile	
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gac	ttc	aac	tgg	gaa	tac	cct	tct	tgc	aag	cat	cag	cat	aag	aaa	ctt	875
Asp	Phe	Asn	Trp	Glu	Tyr	Pro	Ser	Ser	Lys	His	Gln	His	Lys	Lys	Leu	
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gta	aac	cga	gac	cta	aaa	acc	cag	tct	ggg	agt	gag	atg	aag	aaa	ttt	923
Val	Asn	Arg	Asp	Leu	Lys	Thr	Gln	Ser	Gly	Ser	Glu	Met	Lys	Lys	Phe	
			275				280					285				
ttg	agc	acc	tta	act	ata	gat	ggg	gta	acc	cgg	agt	gac	caa	gga	ttg	971
Leu	Ser	Thr	Leu	Thr	Ile	Asp	Gly	Val	Thr	Arg	Ser	Asp	Gln	Gly	Leu	
			290			295					300					
tac	acc	tgt	gca	gca	tcc	agt	ggg	ctg	atg	acc	aag	aag	aac	agc	aca	1019
Tyr	Thr	Cys	Ala	Ala	Ser	Ser	Gly	Leu	Met	Thr	Lys	Lys	Asn	Ser	Thr	
			305			310				315					320	
ttt	gtc	agg	gtc	cat	gaa	aaa	cct	ttt	gtt	gct	ttt	gga	agt	ggc	atg	1067
Phe	Val	Arg	Val	His	Glu	Lys	Pro	Phe	Val	Ala	Phe	Gly	Ser	Gly	Met	
				325					330					335		
gaa	tct	ctg	gtg	gaa	gcc	acg	gtg	ggg	gag	cgt	gtc	aga	atc	cct	gcg	1115
Glu	Ser	Leu	Val	Glu	Ala	Thr	Val	Gly	Glu	Arg	Val	Arg	Ile	Pro	Ala	
			340					345					350			
aag	tac	ctt	ggt	tac	cca	ccc	cca	gaa	ata	aaa	tgg	tat	aaa	aat	gga	1163
Lys	Tyr	Leu	Gly	Tyr	Pro	Pro	Pro	Glu	Ile	Lys	Trp	Tyr	Lys	Asn	Gly	
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Ile	Pro	Leu	Glu	Ser	Asn	His	Thr	Ile	Lys	Ala	Gly	His	Val	Leu	Thr	
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att	atg	gaa	gtg	agt	gaa	aga	gac	aca	gga	aat	tac	act	gtc	atc	ctt	1259
Ile	Met	Glu	Val	Ser	Glu	Arg	Asp	Thr	Gly	Asn	Tyr	Thr	Val	Ile	Leu	
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acc	aat	ccc	att	tca	aag	gag	aag	cag	agc	cat	gtg	gtc	tct	ctg	gtt	1307
Thr	Asn	Pro	Ile	Ser	Lys	Glu	Lys	Gln	Ser	His	Val	Val	Ser	Leu	Val	
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gtg	tat	gtc	cca	ccc	cag	att	ggt	gag	aaa	tct	cta	atc	tct	cct	gtg	1355
Val	Tyr	Val	Pro	Pro	Gln	Ile	Gly	Glu	Lys	Ser	Leu	Ile	Ser	Pro	Val	
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Asp	Ser	Tyr	Gln	Tyr	Gly	Thr	Thr	Gln	Thr	Leu	Thr	Cys	Thr	Val	Tyr	
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gcc	att	cct	ccc	ccg	cat	cac	atc	cac	tgg	tat	tgg	cag	ttg	gag	gaa	1451
Ala	Ile	Pro	Pro	Pro	His	His	Ile	His	Trp	Tyr	Trp	Gln	Leu	Glu	Glu	
			450			455					460					
gag	tgc	gcc	aac	gag	ccc	agc	cat	gct	gtc	tca	gtg	aca	aac	cca	tac	1499
Glu	Cys	Ala	Asn	Glu	Pro	Ser	His	Ala	Val	Ser	Val	Thr	Asn	Pro	Tyr	
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cct	tgt	gaa	gaa	tgg	aga	agt	gtg	gag	gac	ttc	cag	gga	gga	aat	aaa	1547
Pro	Cys	Glu	Glu	Trp	Arg	Ser	Val	Glu	Asp	Phe	Gln	Gly	Gly	Asn	Lys	
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att	gaa	gtt	aat	aaa	aat	caa	ttt	gct	cta	att	gaa	gga	aaa	aac	aaa	1595
Ile	Glu	Val	Asn	Lys	Asn	Gln	Phe	Ala	Leu	Ile	Glu	Gly	Lys	Asn	Lys	

500						505						510						
act	gta	agt	acc	ctt	gtt	atc	caa	gcg	gca	aat	gtg	tca	gct	ttg	tac	1643		
Thr	Val	Ser	Thr	Leu	Val	Ile	Gln	Ala	Ala	Asn	Val	Ser	Ala	Leu	Tyr			
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aaa	tgt	gaa	gcg	gtc	aac	aaa	gtc	ggg	aga	gga	gag	agg	gtg	atc	tcc	1691		
Lys	Cys	Glu	Ala	Val	Asn	Lys	Val	Gly	Arg	Gly	Glu	Arg	Val	Ile	Ser			
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ttc	cac	gtg	acc	agg	ggg	cct	gaa	att	act	ttg	caa	cct	gac	atg	cag	1739		
Phe	His	Val	Thr	Arg	Gly	Pro	Glu	Ile	Thr	Leu	Gln	Pro	Asp	Met	Gln			
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Pro	Thr	Glu	Gln	Glu	Ser	Val	Ser	Leu	Trp	Cys	Thr	Ala	Asp	Arg	Ser			
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Ile	His	Val	Gly	Glu	Leu	Pro	Thr	Pro	Val	Cys	Lys	Asn	Leu	Asp	Thr			
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Leu	Trp	Lys	Leu	Asn	Ala	Thr	Met	Phe	Ser	Asn	Ser	Thr	Asn	Asp	Ile			
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agg	cag	ctc	aca	gtc	cta	gag	cgt	gtg	gca	ccc	acg	atc	aca	gga	aac	2075		
Arg	Gln	Leu	Thr	Val	Leu	Glu	Arg	Val	Ala	Pro	Thr	Ile	Thr	Gly	Asn			
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ctg	gaa	aat	cag	acg	aca	agt	att	ggg	gaa	agc	atc	gaa	gtc	tca	tgc	2123		
Leu	Glu	Asn	Gln	Thr	Thr	Ser	Ile	Gly	Glu	Ser	Ile	Glu	Val	Ser	Cys			
675						680						685						
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Thr	Ala	Ser	Gly	Asn	Pro	Pro	Pro	Gln	Ile	Met	Trp	Phe	Lys	Asp	Asn			
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gag	acc	ctt	gta	gaa	gac	tca	ggc	att	gta	ttg	aag	gat	ggg	aac	cgg	2219		
Glu	Thr	Leu	Val	Glu	Asp	Ser	Gly	Ile	Val	Leu	Lys	Asp	Gly	Asn	Arg			
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Asn	Leu	Thr	Ile	Arg	Arg	Val	Arg	Lys	Glu	Asp	Glu	Gly	Leu	Tyr	Thr			
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Cys	Gln	Ala	Cys	Ser	Val	Leu	Gly	Cys	Ala	Lys	Val	Glu	Ala	Phe	Phe			
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ata	ata	gaa	ggg	gcc	cag	gaa	aag	acg	aac	ttg	gaa					2351		
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Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr
      35                               40                      45

Leu Gln Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro
      50                               55                      60

Asn Asn Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser
      65                               70                      75                      80

Asp Gly Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn
      85                               90                      95

Asp Thr Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser
      100                              105                     110

Val Ile Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser
      115                              120                     125

Val Ser Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys
      130                              135                     140

Thr Val Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser
      145                              150                     155                     160

Leu Cys Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg
      165                              170                     175

Ile Ser Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile
      180                              185                     190

Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser
      195                              200                     205

Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr
      210                              215                     220

Asp Val Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu
      225                              230                     235                     240

Lys Leu Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile
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Asp Phe Asn Trp Glu Tyr Pro Ser Ser Lys His Gln His Lys Lys Leu
      260                              265                     270

Val Asn Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe
      275                              280                     285

Leu Ser Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu
      290                              295                     300
  
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Tyr Thr Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr  
 305 310 315 320  
 Phe Val Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met  
 325 330 335  
 Glu Ser Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala  
 340 345 350  
 Lys Tyr Leu Gly Tyr Pro Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly  
 355 360 365  
 Ile Pro Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr  
 370 375 380  
 Ile Met Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu  
 385 390 395 400  
 Thr Asn Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val  
 405 410 415  
 Val Tyr Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val  
 420 425 430  
 Asp Ser Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr  
 435 440 445  
 Ala Ile Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu  
 450 455 460  
 Glu Cys Ala Asn Glu Pro Ser His Ala Val Ser Val Thr Asn Pro Tyr  
 465 470 475 480  
 Pro Cys Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys  
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 Ile Glu Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys  
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 Thr Val Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr  
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 Lys Cys Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Val Ile Ser  
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 Phe His Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln  
 545 550 555 560  
 Pro Thr Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser  
 565 570 575  
 Thr Phe Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro  
 580 585 590  
 Ile His Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr  
 595 600 605  
 Leu Trp Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile  
 610 615 620  
 Leu Ile Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr  
 625 630 635 640  
 Val Cys Leu Ala Gln Asp Arg Lys Thr Lys Lys Arg His Cys Val Val  
 645 650 655



Arg Gln Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn  
660 665 670

Leu Glu Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys  
675 680 685

Thr Ala Ser Gly Asn Pro Pro Pro Gln Ile Met Trp Phe Lys Asp Asn  
690 695 700

Glu Thr Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg  
705 710 715 720

Asn Leu Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr  
725 730 735

Cys Gln Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe  
740 745 750

Ile Ile Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu  
755 760